

Virginia's coastal zone encompasses all of Virginia's Atlantic coast watershed as well as parts of the Chesapeake Bay and Albemarle/Pamlico Estuary watersheds. This coastal zone area, also known as Tidewater, Virginia, includes 29 counties, 15 cities, 42 towns, as well as all waters within and out to the three-mile Territorial Sea boundary.

The Virginia Coastal Zone Management Program (Virginia CZM Program) was established in 1986 to protect and enhance Virginia's coastal resources. The Virginia CZM Program is a network of state agencies and Tidewater local governments and the CZM laws and policies they implement. Through this network, the Virginia CZM Program manages sand dunes, wetlands, underwater lands, fisheries, point and nonpoint source air and water pollution, shoreline sanitation and a variety of other areas of particular concern such as coastal wildlife habitats and public access, waterfront redevelopment and underwater historic sites. See <http://www.deq.virginia.gov/coastal/> for more details about the laws and policies that define Virginia's CZM Program.

Executive Order Number Twenty-One (2006) signed by Governor Timothy Kaine in June 2006, continuing the Virginia CZM Program, directs all state agencies "to carry out their legally established duties consistent with the Coastal Program in a manner that promotes coordination among all government agencies." It is through this coordination that the Virginia CZM Program has been able to achieve great strides in achieving its goals and objectives." See [Executive Order 21 \(2006\)](#) for a list of the goals and what the program has accomplished toward reaching these goals.

Core regulatory agencies in the Virginia CZM Program network include the Marine Resources Commission (VMRC), the Department of Environmental Quality (DEQ), the Department of Game and Inland Fisheries (DGIF), the Department of Conservation and Recreation (DCR), the Virginia Department of Health (VDH), and the Chesapeake Bay Local Assistance Department (CBLAD). Other agencies participating in the Program include the Department of Historic Resources (DHR), Department of Forestry (DOF), Virginia Department of Agriculture and Consumer Services (VDACS), the Virginia Institute of Marine Science (VIMS), the Virginia Economic Development Partnership (VEDP) and the Virginia Department of Transportation (VDOT). DEQ serves as the lead agency for Virginia's networked CZM Program and helps agencies and localities to develop and implement coordinated coastal policies.

By virtue of having a federally approved CZM Program, Virginia also has the authority to require that federal actions within the coastal zone be consistent with Virginia's CZM Program. Environmental impact review staff at DEQ review federal actions in the coastal zone for consistency with Virginia's CZM Program laws and policies.

Coastal Zone Management Act Funding Received by Virginia

In addition to providing a forum for development and coordination of cross-cutting coastal issues, the Virginia Coastal Program provides grant assistance to state agencies and local governments. Having a federally approved coastal zone management program qualifies Virginia to receive just under \$3 million per year in federal funds under a formula allocation based on miles of shoreline and coastal zone population. The Office of Ocean and Coastal Resource Management at the National Oceanic and Atmospheric Administration (NOAA) allocates these funds under the Coastal Zone Management Act (CZMA). These grant funds are 50% matched by Virginia's state agencies and local governments.

Since 1986, Virginia has received over \$48 million dollars in federal CZMA funds, matched by over \$42 million in state and local funds. These funds are used to implement the Virginia CZM Program and to carry out a broad scope of state and local projects in the areas of coastal technical assistance, enforcement, environmental management, habitat monitoring and restoration, land acquisition, local government planning and comprehensive plans, public access planning and construction, public education, shoreline management, special area management planning, wetlands surveys and policy, and water quality monitoring/protection and improvements. For grant project lists and descriptions from 1992 to 2007 visit <http://www.deq.virginia.gov/coastal/projects.html>.

2006-2010 Virginia Coastal Needs Assessment and Strategies

When the Coastal Zone Management Act (CZMA) was reauthorized in 1990, a new program was established to provide voluntary, match-free funding to coastal states to address needs in nine coastal areas, also known as "coastal enhancement areas": wetlands, coastal hazards, public access, marine debris, cumulative and secondary impacts, special area management planning (SAMPs), ocean resources, energy and government facility siting, and aquaculture.

[Section 309 of the Coastal Zone Management Act \(CZMA\)](#) establishes a voluntary coastal zone enhancement grants program to encourage states and territories with federally approved coastal management programs to develop "[program changes](#)" -- changes to the state's enforceable policies or authorities -- that help the state make improvement(s) in one or more of the nine coastal enhancement areas.

The National Oceanic and Atmospheric Administration, which distributes CZMA funds, requires that coastal states assess changes, progress and new issues in these areas every five years. The "Coastal Needs Assessment" is developed under Section 309 of the Coastal Zone Management Act. This assessment ranks the need in each area as high, medium, or low priority. Once the high priority areas have been determined, strategies are developed which must result in new enforceable coastal policies in each area. The Coastal Needs Assessment and strategies are submitted to NOAA for approval, once completed. The Virginia CZM Program completed an assessment of its "coastal enhancement areas" in December 2005.

The assessment was distributed to the Virginia CZM Program's [Coastal Policy Team \(CPT\)](#) for ranking. The CPT ranked the following areas as "high priority" over the next five years:

- wetlands
- public access
- SAMPs
- aquaculture
- coastal hazards
- cumulative and secondary impacts of growth and development

Three areas received a "medium priority" ranking:

- marine debris
- energy facility siting
- ocean resources

No area was assigned a "low priority" by the CPT, reflecting the increasing pressures from population growth and urbanization on our coastal resources.

Once the Virginia CZM Program has conducted its coastal needs assessment, the program develops 5-year strategies to address improvements in the areas of high priority need. These strategies are developed with input from the program's partners and constituencies. Specific grant projects are then developed to accomplish the strategies over the five-year period. The proposals for these projects are then approved by NOAA. Having received NOAA's approval of its draft **2006-2010 Coastal Needs Assessment and Strategy Report** from [NOAA's Office of Ocean and Coastal Resource Management](#), the Virginia CZM Program anticipates receiving approximately \$540,000 each year over the next five years to implement its strategies.

Over the next five years, the Virginia CZM Program will focus its Section 309 funding on the following high priority areas:

- Cumulative and Secondary Impacts (Shoreline Management and Intergovernmental Decision-making strategies highlighted below)
- Special Area Management Planning (Dragon Run SAMP and Seaside SAMP)
- Aquaculture (Management Initiatives for Shellfish Aquaculture strategy highlighted below)
- Program Implementation

Links to Virginia Coastal Needs Assessment Documents

[2006-2010 Coastal Needs Assessment Report Introduction \(pdf\)](#)

- [Summary of Past Section 309 Efforts \(2001-2005\)](#) (pdf)

2006 Assessment - High Priority Areas:

- [Coastal Public Access Assessment](#) (pdf)
- [Coastal Hazards Assessment](#) (pdf)
- [Coastal Wetlands Assessment](#) (pdf)
- [Coastal Cumulative and Secondary Impacts Assessment](#) (pdf)
- [Special Area Management Planning Assessment](#) (pdf)
- [Aquaculture Assessment](#) (pdf)

2006 Assessment - Medium Priority Areas:

- [Energy and Government Facility Siting Assessment](#) (pdf)
- [Ocean Resources Assessment](#) (pdf)
- [Marine Debris Assessment](#) (pdf)

For more information about the Section 309 Coastal Needs Assessment process and current report, please contact Laura McKay at (804) 698-4323; Laura.McKay@deq.virginia.gov.

Virginia Coastal Zone Management Program Initiatives Benefiting Water Quality

Several initiatives exemplify the Virginia CZM Program's unique opportunity to fund and support projects that protect the Commonwealth's coastal resources, while encouraging intergovernmental coordination and partnerships with a broad constituency. The initiatives highlighted below are a few of the Program's projects that address water quality issues and focus on monitoring and restoration of living resources which improve water quality in Virginia's coastal waters. They include the Virginia Seaside Heritage Program; development of Coastal GEMS - a green and blue infrastructure Internet mapping system; coordination of improvements to Virginia's shoreline management guidance, policy analysis, data and research; coordination of shellfish aquaculture management guidance, policy analysis, data and research; and coordination of Virginia's coastal non-point source pollution program.

Virginia Seaside Heritage Program

Dependent on good water quality, submerged aquatic vegetation (SAV) is an important indicator of the health of our coastal waters. SAV also provides habitat and reduces wave energy on adjacent shorelines. Seagrass restoration, as well as oyster restoration, has been a focus of a Virginia CZM Program multi-year initiative to help restore the ecology and economy of Virginia's Atlantic barrier island lagoon system – the *Virginia Seaside Heritage Program* (VSHP). The VSHP has tremendous potential to demonstrate habitat restoration techniques and appropriate management of economic development within a rare and fragile ecosystem. Initially designed as a three-year project, the VSHP will be funded through 2008 to build upon the successes already achieved by the VSHP partners.

Virginia Seaside Heritage Program Projects and Status (updates available online at <http://www.deq.state.va.us/coastal/vshp/goals.html>)

Habitat Restoration:

- Eelgrass restoration
- Oyster restoration
- Phragmites mapping and removal
- Avian habitat improvement
 - *Bird Concentration and Habitat Studies*
 - *Predation on Shorebirds and Waterbird Populations*

Sustainable Industries: Ecotourism and Shellfish Farming

- Ecotour guide certification
- Seaside Water Trail - floating docks and on-line guide
- Aquaculture best management practices
- Shorebird prey and clam aquaculture conflicts

Management and Education:

- Virginia Eastern Shorekeeper
- Seaside water quality database
- Seabird migration studies
- Educating landowners and the public:

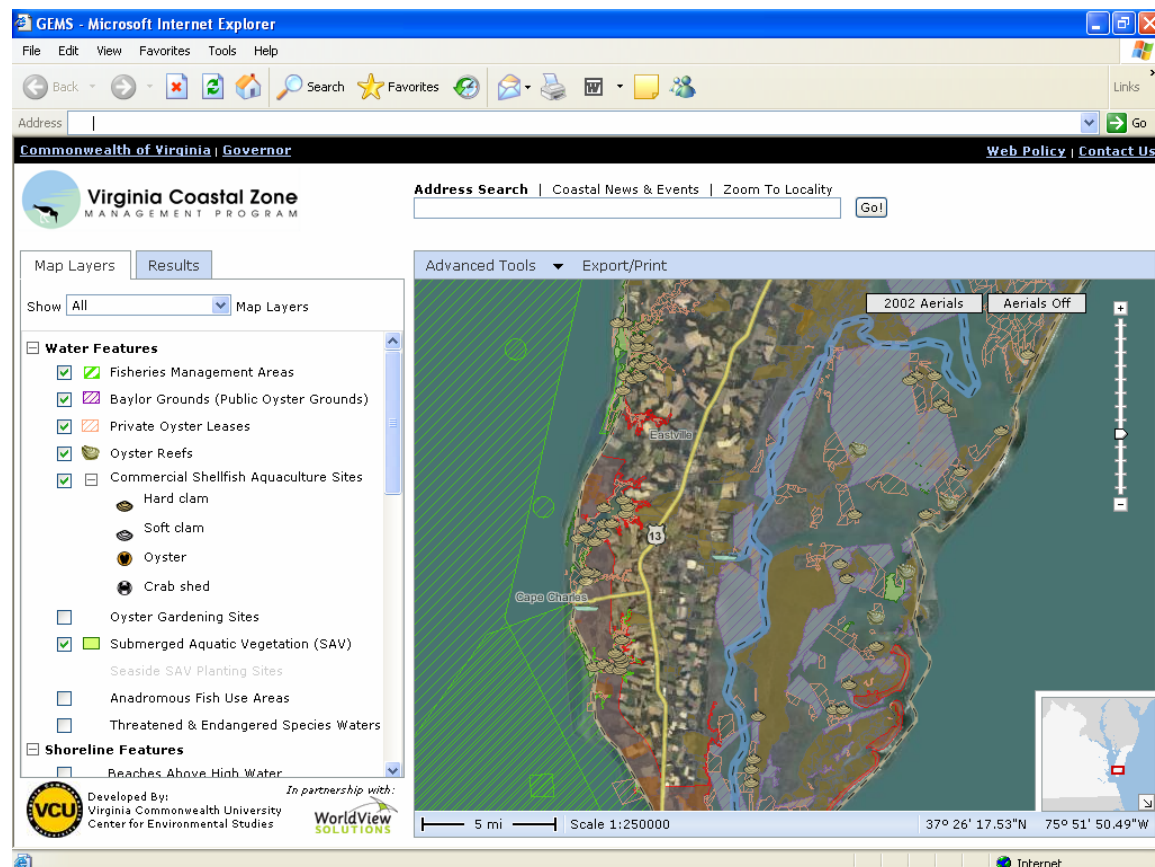
- Phragmites management
- beach nesting bird habitat and protection (*Barrier Island Beach Nesting Bird Brochure*)
- Seaside mapped resources on Coastal GEMS
- Seaside Management Plan

A copy of **Virginia Seaside Heritage Program: Goals and Project Highlights 2002 – 2007** is downloadable - <http://www.deq.state.va.us/coastal/vshp/documents/brochure.pdf>

For more information about the Virginia Seaside Heritage Program, please contact Laura McKay at (804) 698-4323; Laura.McKay@deq.virginia.gov. Visit the Seaside Heritage Program Web site at <http://www.deq.virginia.gov/coastal/vshp/homepage.html> for more details on the projects mentioned here and other efforts under the VSHP to improve barrier island avian habitat, increase ecotourism opportunities, map and remove Phragmites, and educate the public about the significant coastal resources of Virginia's eastern shore.

Coastal GEMS - Creating a Vision for Virginia's Coastal Zone

In February 2007, the Virginia CZM Program launched "Coastal GEMS" (Coastal Geospatial and Educational Mapping System) found at www.deq.virginia.gov/coastal/coastalgems.html. Coastal GEMS integrates and provides access to a wide range of coastal resource data, fact sheets, relevant projects, regulatory information, and important Web links. Coastal GEMS is a robust, one-stop, data gateway for federal, state, and local government decision makers. It facilitates data sharing among governments, NGOs, and the general public and promotes standards for environmental data management within the region. Coastal GEMS allows its users to explore and describe patterns and relationships among water and land ecosystem elements across broad (i.e., landscape-level) spatial scales.



The development of Coastal GEMS was a large-scale, multi-partner effort to create a "vision" or map of the ecologically and economically significant aquatic (marine and freshwater) and terrestrial resources found within Virginia's Coastal Zone. Although spatially displayed data for aquatic and terrestrial ecosystems are becoming more and more accessible through the Internet, often these data are

sequestered in different agencies' and organizations' websites and are not joined into one central application to allow all users equal and efficient access. The vision was to build this type of access. Seeing the resources in one big picture could simplify the task of connecting local land use planning decisions to state and federal water use policies. A stronger understanding of how activities on the land and in the water affect one another would enable everyone to better protect and manage coastal resources in a logical and sustainable fashion - something critically needed in light of today's increasing development pressures.

The data which are being incorporated into Coastal GEMS have been the result of collaborative discussions and data-sharing efforts between many state and local agencies with a vested interest in Virginia's coastal zone. The Virginia CZM Program has also funded many data development projects. The data layers representing "blue infrastructure" (water resources) are primarily the result of three CZM projects costing about \$530,000. The marine data, produced by the Virginia Institute of Marine Science (VIMS), defined geographic areas for important marine resources (e.g. oyster reefs, underwater grasses) and converted the Marine Resources Commission's (MRC) fisheries management areas from an AutoCAD database to GIS. The freshwater data, produced by Virginia Commonwealth University (VCU), is called the Interactive Stream Assessment Resource (INSTAR) and assesses stream health based on fish, macro-invertebrates, habitat and stream geomorphology. The primary "green infrastructure" layers (land resources) are the Hampton Roads Conservation Corridor Study completed in May 2006 (for about \$40,000 in CZM funds) by the Hampton Roads Planning District Commission, and the Virginia Conservation Lands Needs Assessment (VCLNA) completed in fall 2007 by the Department of Conservation and Recreation's Division of Natural Heritage (for about \$204,000 in CZM funds). The VCLNA (http://www.dcr.virginia.gov/natural_heritage/vclna.shtml) assesses the Virginian landscape for ecological value, recreational value, agricultural value, cultural value, watershed integrity, forest economic value, and predicted growth. For Coastal GEMS to be the most useful and comprehensive, the Virginia CZM Program will continue to explore opportunities to include additional data layers from partner agencies as they are developed.

The availability of adequate coastal resource data is essential to improving decision-making at the state and local level. By mapping the best remaining blue and green infrastructure in coastal Virginia, the Virginia CZM Program's Coastal GEMS website provides an easy-to-access, visual reference for localities where vital coastal resources are located. The Virginia CZM Program continues to work closely with the Center for Environmental Studies at Virginia Commonwealth University, Worldview Solutions, Inc. and all its data-sharing partners to enhance the interface, tools, data, and information within Coastal GEMS. Coastal GEMS is now a dynamic Internet mapping application with aerial imagery, reference data layers such as roads and streams, and over 40 data layers of land and water coastal resources, models and examples for conservation planning. The mapping tools allow you to easily investigate and navigate through the coastal zone. Unique selection tools allow you to generate tables of coastal resource information for a selected area that can be exported or printed for further use and analysis.

The divisions of state and local management of Virginia's coastal resources are complex and difficult for the general public to understand. In addition to the mapping component of Coastal GEMS, the Virginia CZM Program created "fact sheets" for each data layer to break down the complexity of coastal resource management. The fact sheets provide brief information and links to in-depth information on:

- The value of the resource (ecological, economic, and social).
- Management of the resource (at local, state, and federal levels).
- Why and how the data was developed.
- How to directly download the data or who to contact to obtain the dataset.
- Future directions if the data is associated with a long-term funded project.
- Frequently asked questions received from the general public.

The Virginia CZM Program is set to release a second version of Coastal GEMS in the late fall of 2007. Following this release, training workshops will be available for state agencies, local governments, and conservation organizations. The CZM Program also plans to develop a secondary education curriculum.

For more information on Coastal GEMS and to see a full list of geospatial data available, please visit www.deq.virginia.gov/coastalgems or contact Kelly Price at (804) 698-4260 or Kelly.Price@deq.virginia.gov.

Shoreline Management

Waterfront development is rapidly altering Virginia's shoreline, often in ways that can be detrimental to habitats and water quality. In particular, many low energy shorelines are being hardened with revetments and bulkheads where less damaging techniques for managing shoreline erosion could be employed. According to the Virginia Institute of Marine Science, 229.2 miles of new bulkheads and rock revetments were approved between 1993 and 2004 and shoreline hardening is continuing at a rapid pace. In many of these cases shoreline erosion could be managed through a "[living shoreline](#)" approach that maintains, or even expands, the habitat and water quality protection benefits of natural shorelines.

This strategy builds on progress made during the last 309 Strategy to integrate riparian and near-shore management objectives and improve shoreline management practices. As a result of this strategy, the various agencies involved in shoreline management will be better able to promote living shoreline techniques and reduce the cumulative and secondary environmental impacts of waterfront development on shorelines. The strategy includes a number of components: a living shoreline summit, revisions to the current Wetlands Guidelines and Coastal Primary Sand Dunes and Beaches Guidelines, research on living shorelines, a local shoreline planning guidance document, data on shoreline conditions, and outreach and training projects. Other potential policy changes that will be considered in conjunction with these components include: a fast track or general permit for living shorelines, a strategy for increasing the availability of plants for living shoreline projects, a marketing campaign to promote living shorelines, and a comprehensive, Internet-based source of information and data on living shorelines.

Shoreline Management Grant Projects

Virginia Institute of Marine Science - Chesapeake Bay National Estuarine Research Reserve - [Support for the Joint VA/MD Living Shoreline Summit](#) (Held December 2006)
<http://www.deq.state.va.us/coastal/description/2006projects/94-01-06.html>

Virginia Institute of Marine Science - Center for Coastal Resource Management - [Recommendations for Revisions to the Wetlands Guidelines](#) - <http://www.deq.state.va.us/coastal/description/2006projects/94-02-06.html>

Virginia Institute of Marine Science - [Management-Support Synopsis of Virginia Dune and Beach Assessments](#) - <http://www.deq.state.va.us/coastal/description/2006projects/94-03-06.html>

Virginia Institute of Marine Science - [Site Survey and Water Quality Assessment for Better Sill Design](#) - <http://www.deq.state.va.us/coastal/description/2006projects/94-04-06.html>

VA Department of Environmental Quality - Virginia Coastal Zone Management Program - [Living Shoreline Landowner Guide](#) - <http://www.deq.state.va.us/coastal/description/2006projects/94-05-06.html>

Virginia Institute of Marine Science - [Shoreline Situation Reports for Tidewater Localities](#) - <http://www.deq.state.va.us/coastal/description/2007projects/94-03-07.html>

Virginia Institute of Marine Science – [Recommendations for Revisions to Sand Dunes and Beaches Guidelines](#) - <http://www.deq.state.va.us/coastal/description/2007projects/94-02-07.html>

For more information about the Virginia CZM Program's shoreline management coordination activities, please contact Shep Moon at (804) 698-4527 or Shep.Moon@deq.virginia.gov.

Management Initiatives for Shellfish Aquaculture

This strategy is intended to facilitate the identification and implementation of options to protect water quality for shellfish aquaculture and continue the development of information necessary to manage aquaculture activities in order to avoid conflicts with other reasonable and permissible uses of state waters and State-owned submerged lands and to avoid impacts to other aquatic resources through existing regulatory review procedures. Through this effort, the Virginia CZM Program hopes to identify and evaluate alternative management strategies for adoption and implementation. This includes the potential for re-enactment of the water column leasing legislation and the assessment of opportunities for the public use of Baylor Grounds for aquaculture activities. This effort includes an evaluation of options for local ordinances designed to manage land use adjacent to areas designated for aquaculture.

Since the draft strategy was originally submitted on March 3, 2006, aquaculture issues have taken on an even higher priority for the Commonwealth. Therefore, this strategy will receive a higher

level of funding than originally proposed. The issue of water quality, shoreline development and suitable sites for aquaculture was highlighted in June 2006 when a development along Chincoteague Bay in Accomack County submitted an application for a sewage discharge permit from DEQ. As proposed, the discharge would result in a major shellfish ground closure. Although the permit decision is still pending, the issue caught the attention of Governor Kaine, who requested that the Secretaries of Natural Resources, Agriculture and Health identify the tools and options Virginia has for evaluating and protecting suitable waters for shellfish culture.

Furthermore, although progress was made in developing a water column-leasing program for aquaculture activities under a previous Section 309 strategy, the General Assembly failed to appropriate funds to implement the program so the legislation must be re-introduced. A permit for non-commercial oyster gardening was developed, adopted and implemented, and has been a regulation for “on-bottom” use of existing shellfish leases. This regulation was mainly developed for hard clam aquaculture although some oyster growers have developed procedures that are covered by this regulatory authorization.

As the restoration of wild oysters remains elusive, it becomes even more important to provide adequate opportunity for the production of cultivated shellfish. A recent discussion among scientists, resource managers and industry professionals agreed that the public use of 240,000 acres of public Baylor Grounds should be re-evaluated and considered for the public use for aquaculture activities. The terms “aquaculture parks” or “enterprise zones” have been proposed for such use. Since the Baylor Grounds were surveyed and established in the late 1800’s, the management of these areas has historically included harvest restrictions and the transplantation of shell and seed. Recent management efforts have included the establishment of brood stock reefs and designation of adjacent harvest areas.

This strategy involves identification of suitable areas within the Baylor Grounds and other established public grounds, as well as “unassigned” subaqueous bottom, for shellfish growing and the identification or possible leasing or use program(s) to allow cultivation in those areas. Even a very small percentage (e.g. 5%) of the Baylor Grounds would provide opportunity for 12,000 acres of shellfish growing area. This effort would initially involve a legal evaluation of authorized uses for Baylor Grounds and the identification of any impediments for the establishment of aquaculture areas within Baylor Grounds with the understanding that any program would need to recognize that these grounds were set aside and protected for public use. The process for final designation of sites for “aquaculture parks” or “enterprise zones” would involve public review.

For this effort, adjustments needed to be made to the 2004 “Aquaculture Use Suitability Model” developed under the previous Section 309 strategy by VIMS. Current and future shellfish farming techniques may make different areas more or less suitable than they had been previously. Consideration will also be given to the possibility of moving aquaculture further from land so as to avoid high use conflict areas and take advantage of high algae/high oxygen areas near the surface of the water. However these goals will have to take into account logistical and economic feasibility of working a bit further offshore.

A model local ordinance for designating areas as low density or no additional discharge areas could be developed. Both state and local actions must be coordinated to adequately protect areas for shellfish culture. Coastal GEMS will be used to help assess land/water interactions. Additional data such as current local zoning, hydrodynamic situations and bottom “types” may also be needed.

Shellfish farming, although positive for the economy and for ecological removal of algae from eutrophied systems, can create negative ecological and aesthetic impacts if not conducted properly. Through the VA CZM Program’s Seaside Heritage Program, work began on developing Best Management Practices for clam farming on Virginia’s Eastern Shore. In the absence of an organized shellfish growers’ association, it was difficult to secure industry “buy-in” for these BMPs. Industry input and acceptance of BMPs is considered to be critical to the success of a BMP program.

This strategy also develops a set of Best Management Practices for shellfish farming (including clams, oysters and any other shellfish that are likely to be cultivated in Virginia in the near future) for all of Virginia’s waters. BMPs relevant to a particular permit would then become attached to aquaculture or shellfish growing permits. The strategy investigates the best mechanisms for this approach by reviewing similar practices in other states such as Florida.

Grant projects currently underway:

Virginia Institute of Marine Science - Center for Coastal Resource Management - [Shellfish Aquaculture Suitability Model](#)

Virginia Institute of Marine Science/College of William and Mary - [Management Initiatives for Shellfish Aquaculture -Development of an Environmental Code of Practice and Best Management Practices for Virginia](#)

Virginia Polytechnic Institute and State University - [Economic Implications of Promoting the Aquaculture Industry in Virginia: Alternative Management Strategies](#)

Virginia Institute of Marine Science – Center for Coastal Resource Management - [Assessment of Aquaculture Potential within Baylor Grounds in the Lower Rappahannock River](#)

Virginia Coastal Nonpoint Source Pollution Program

In 2001, Virginia became the sixth state to receive full approval of its *Coastal Nonpoint Pollution Control Program* from NOAA and EPA. Development of the program was initiated in the fall of 1992 in response to Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990. Section 6217 of the Act requires that state's with an approved coastal zone management program, develop a Coastal Nonpoint Source Pollution Control Program. The statute is meant to restore and protect coastal water quality through the application of economically achievable "best management practices" implemented through enforceable state policies and mechanisms. The federal government defines state enforceable policies and mechanisms as state and local regulatory controls and/or non-regulatory incentive programs combined with state enforcement authority.

There are 56 management measures contained in the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, a comprehensive technical document issued by EPA on methods to abate and control nonpoint pollution in coastal areas. The chapters include management measures in the following areas: agriculture, forestry, urban areas, marinas and recreational boating, and hydromodification (channelization and channel modification, dams and streambank and shoreline erosion). This document is available at <http://www.epa.gov/owow/nps/MMGI/>.

In order to gain approval of its Coastal Nonpoint Pollution Control Program, Virginia was required to show that:

- 1) State programs include appropriate management measures (defined in the above guidance) to control NPS pollution;
- 2) The state has a means of implementing the management measures, and;
- 3) The state has sufficient statutory authority and enforcement capabilities to ensure implementation of management measures to reduce NPS pollution impacts on coastal resources.

With approval of its Coastal Nonpoint Pollution Control Program, Virginia remains eligible for full funding under the Coastal Zone Management Act and Section 319 of the Clean Water Act.

Following are some of the projects that contributed to the approval of Virginia's Program:

- A series of workshops on the proper use of irrigation systems and development of informational material on irrigation best management practices;
- Development of a web-enabled database for use by local government to track erosion & sediment control activities; development of a model local stormwater ordinance; and an economic evaluation of incorporating BMPs into site design;
- Development of shorelands planning protocol for use by local governments to enhance planning capabilities for areas adjacent to shorelands;
- A statistical analysis of the impact of channelization activities and dams in Tidewater Virginia on instream & riparian habitat;
- A plasticulture guidebook for local government and farmers recommending practices to protect water quality for operations using plastic mulch;
- Development of the Virginia Clean Marina Program to provide technical assistance to marinas and recreational boaters – more details below.

Virginia is addressing the Marina/Boatyard, Hydromodification, Urban Source and Wetland categories through such projects as: the Virginia Clean Marina Program; completion of coastal regional curves for stream restoration designs; technical assistance to local governments for innovative designs, use of new planning tools (INSTAR, Coastal GEMS), development and delivery of a Nonpoint Education for Municipal Officials (NEMO) program, support and expansion of the Chesapeake Club Social Marketing Campaign (<http://www.chesapeakeclub.org/>); support for the Joint MD/VA Living Shoreline Summit and development of a Shellfish TMDL Implementation Plan.

For more details on projects and products produced through the Virginia Coastal Nonpoint Pollution Program, visit http://www.dcr.virginia.gov/soil_&_water/czreauth.shtml or contact Todd Janeski at (804) 371-8984 or e-mail: Todd.Janeski@dcr.virginia.gov.

Virginia Clean Marina Program

There are approximately 1000 marinas and 250,000 boaters sharing the natural and economic benefits of Virginia's waterways. With each new boater and marina operator, the potential impact to our waterways from nonpoint source pollution increases. Studies have shown, however, that an increasing number of recreational boaters support efforts to prevent and reduce pollutants from entering Virginia's waterways, and that higher occupancy rates exist at marina's where BMPs have been put into place.

In January 2001, marina operators, marine industry representatives and state officials launched the Virginia Clean Marina Program. The Virginia CZM helped spearhead development of the Clean Marina Program and has provided funding to the program since its inception. This voluntary initiative is designed to educate and give technical support and special recognition to marinas that implement Best Management Practices (BMP's) that go above and beyond regulatory requirements and minimize potentially negative impacts on water quality and coastal resources. The program is a joint agency initiative between the Virginia CZM Program, Department of Environmental Quality, Department of Conservation and Recreation and Virginia Sea Grant at the Virginia Institute of Marine Science.

A Marina Technical and Environmental Advisory Committee (MTEAC), made up of representatives from Virginia's coastal network of state agencies, marine trade industry and the recreational boating and environmental communities, directed development of the Virginia Clean Marina Program. This committee spent several months refining a Virginia Clean Marina Guidebook for use by marina operators and recreational boaters. The Guidebook provides information on implementing BMP's at marinas, provides summaries of the pertinent state and federal laws affecting marinas and agency contacts for additional information. Fact sheets provided in the Guidebook can be copied and distributed to boaters or the guidebook is available on-line at <http://www.vims.edu/adv/vamarina/>. A Marina Technical Advisory Specialist, located in the Virginia Institute of Marine Science Sea Grant Office, is currently focusing on developing technical information on environmental and economic issues and working with marinas who have pledged to achieve voluntary designation as a Virginia Clean Marina. As of the end of 2007, 41 marinas have been awarded Virginia Clean Marina Designation.

During 2007 and 2008, the Virginia Clean Marina Program will focus on reaching Virginia boaters with new educational materials and implementation of a new marketing plan to promote the program and increase participation by Virginia's marinas.

For more information on the Virginia Clean Marina Program, including Clean Marina Success Stories, contact Wendy Larimer, Clean Marina Specialist, at (804) 684-7768, or visit the Virginia Clean Marina Web site at <http://www.vims.edu/adv/vamarina/index.html>.